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HOW TO ESTIMATE THE COST OF DIABETES BASED ON INFORMATION FROM THE FRENCH HEALTH INSURANCE DATABASE (SNIIRAM)?

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OBJECTIVES: The aim of this study is to assess for 2012 the cost of diabetes from a payer perspective, based on the French health insurance database and using two different approaches (top down versus bottom-up). **METHODS:** Using information about 60 millions of individuals from the general scheme insurance database (85% of the French population), we developed algorithms to identify all people who received care for each of 56 groups of diseases or medical events or treatments, which are frequent, severe and/or costly. Algorithms have been applied to each patient. For diabetes, we used ICD-10 diagnoses for long-term chronic diseases, reimbursement for anti-diabetic drugs. Costs of all reimbursed expenditures (outpatient/inpatient care, disability/sickness benefits) were extracted per individual. The top-down method allocated expenditure to each of the 56 diseases based on the average expenditure by disease calculated for individuals with only one disease. All expenditures were thereafter extrapolated to the whole population to fit national health account aggregates. For the bottom-up approach, diabetes expenditures were estimated by identifying finely in our database expenditure items which are partly or wholly directly related to diabetes according to expert judgment. **RESULTS:** Based on the top-down approach, among the 146 billion euros of expenditures reimbursed by national health insurance (all insurance schemes) in 2012, 7. 5 billion (5%) are attributable directly to diabetes. Expenditures for chronic renal insufficiency and cardio-vascular disease, frequent diabetes complications, have been assessed separately. Drugs and medical devices (3.8 billion €) represents more than 50% of the diabetes expenditures, other outpatient care 34% (2.5 billion), inpatient care 9% (700 millions) and disability/sickness benefits 7% (500 millions). Based on our bottom-up, around 8 billion would be directly attributable to diabetes. **CONCLUSIONS:** Our study provides estimation of the cost of diabetes from a payer perspective, according to two different approaches but with concordant results.

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DIRECT COST OF DIFFUSE TOXIC GOITER AND ITS COMPLICATIONS IN UKRAINE

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OBJECTIVES: To determine the direct cost of health care technologies used for treatment of diffuse toxic goiter in Ukraine. **METHODS:** We made the retrospective analysis of 52 patients's medical records with DTG that were hospitalized to the endocrinology department of Ternopil University Hospital (Jan-Dec 2012). The method of pharmacoeconomic analysis "cost of illness" was used to estimate the cost of health care for patients with DTG. We have made calculations of costs: the cost of laboratory analysis, the cost of instrumental analysis, the cost of drug treatment, doctor's consultations, costs of patient's stay in hospital. While determining the direct costs of medical services in monetary terms we used the rates for medical services that were in Ternopil University Hospital. **RESULTS:** The study found that among the patients there were 11 (21.15%) men and 41 (78.85%) women aged 20 to 65 years (46.88±8.9). All patients have got to the hospital in stage of medication subcompensation. The average duration of stay in hospital for patients was 10.67±2.07 days. The total cost of laboratory tests was EUR 1,555.53. The costs of instrumental methods of patients examination amounted EUR 204.25. The cost of consultations by specialists was EUR 285.97. In determining the amount of direct costs for medicines we found that the cost of drug treatment of the underlying disease is EUR 211.83, the cost of drug therapy of DTG complications is EUR 1,163.64. Total cost of patients stay in hospital was EUR 3,513.45. After calculation of all direct costs we determined that the total cost of DTG per patient is EUR 133.36 per course of treatment. **CONCLUSIONS:** In the cost structure of health care provision for patients with diffuse toxic goiter the most significant costs were spent for laboratory tests and for patient's stay in hospital. The presence of underlying disease complications significantly increases cost of drugs.

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COMPARISON OF THE ECONOMIC BURDEN AND HEALTH CARE UTILIZATIONS OF U.S. VETERAN PATIENTS DIAGNOSED WITH TYPE 2 DIABETES MELLITUS

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OBJECTIVES: To evaluate the economic burden and health care utilizations of Type 2 diabetes mellitus (T2DM) among U.S. veteran patients. **METHODS:** T2DM patients (International Classification of Disease 9th Revision Clinical Modification [ICD-9-CM] diagnosis codes 250.x0, 250.x2) were identified using the U.S. Veterans Health Administration Medical SAS datasets (01OCT2008-31SEP2011). The first diagnosis date was defined as the index date. A comparison cohort of patients without a T2DM diagnosis but of the same age, region, gender and index year were identified and matched according to baseline Charlson Comorbidity Index scores, with a randomly chosen index date to minimize selection bias. Patients in both cohorts were required to be at least age 18 years, with 1-year continuous health plan enrollment pre- and post-index date. Baseline body mass index (BMI) and glycated hemoglobin (HbA1c) values and follow-up health care costs and utilizations were compared using 1: 1 propensity score matching (PSM). **RESULTS:** A total of 1,211,748 T2DM patients were identified for study. T2DM patients had significantly higher HbA1c (7.25 vs. 5.78, p<0.0001) and BMI (31.75 vs. 29.16, p<0.0001) results during the baseline period. After 1: 1 PSM, each cohort included 323,962 patients, with well-balanced baseline demographic and clinical characteristics. A higher percentage of T2DM patients had inpatient admissions (8.65% vs. 1.58%, p<0.0001), emergency room (ER) (13.12% vs. 4.44%, p<0.0001) and physician office visits (99.54% vs. 45.22%, p<0.0001) and prescription fills (84.55% vs. 45.43%, p<0.0001). The T2DM cohort also incurred higher inpatient ($3,051 vs. $424, p<0.0001), ER ($127 vs. $39, p<0.0001), physician office ($2,934 vs. $875, p<0.0001), outpatient ($3,299 vs. $971, p<0.0001), pharmacy ($610 vs. $224, p<0.0001) and total costs ($6,958 vs. $1,618, p<0.0001) than the comparison cohort. **CONCLUSIONS:** Study results suggest that patients diagnosed with T2DM utilized more health resources and incurred four times higher costs compared to those without a T2DM diagnosis.

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MEDICAL EXPENDITURES ASSOCIATED WITH TYPE 2 DIABETES MELLITUS IN JAPAN: A LARGE CLAIMS DATABASE STUDY

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OBJECTIVES: The objective of the study was to estimate the excess costs associated with type 2 diabetes mellitus (T2DM) and diabetes-related complications in Japan through the use of a large claims database. **METHODS:** We performed a retrospective cohort analysis using a large commercial claims database obtained from the Japan Medical Data Center Co., Ltd. (Tokyo, Japan). Data from the period between January 2005 and June 2012 were analyzed. Patients diagnosed with T2DM were identified using the International Classification of Diseases 10th revision (ICD-10) diagnosis codes E11–E14, with the month of initial diagnosis designated as the index month. Cost and health care utilization data from claims for outpatient, inpatient, and dispensing services during the study period were summarized to per-patient-per-month (PPPM) levels. Costs were calculated from the perspective of a public health care payer. Diabetes-related complications were identified through the occurrence of the following diseases after the index month and/or their associated treatment: retinopathy, nephropathy, neuropathy/extremity disease, ischemic heart disease, and cerebrovascular disease. Regression-adjusted medical costs associated with each health state of T2DM were estimated using a fixed-effects model. **RESULTS:** A total of 8,063,139 PPPM records from 152,791 T2DM patients were identified and examined. The average follow-up duration per patient was 52.8 months. The average incremental cost for T2DM was US$123 PPPM. The average incremental costs for diabetes-related complications were US$94 (retinopathy without surgery), US$1,933 (retinopathy with surgery), US$17 (renal proteinuria), US$319 (renal failure), US$3,677 (dialysis), US$131 (neuropathy and/or extremity disease without surgery), US$4,498 (neuropathy and/or extremity disease with surgery), US$93 (ischemic heart disease without surgery), US$13,280 (ischemic heart disease with surgery), US$56 (cerebrovascular disease with surgery), and US$2,605 (cerebrovascular disease with hospitalization). **CONCLUSIONS:** These estimates of incremental medical expenditure in relation to health state may contribute to economic evaluations of various aspects of health care in Japan.

PDB56

HEALTH CARE COSTS IN PATIENTS WITH TYPE 2 DIABETES IN FLANDERS BASED ON A COMBINATION OF CLINICAL AND HEALTH INSURANCE DATA

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OBJECTIVES: To analyse the annual health care costs of patients with type 2 diabetes in Flanders from the perspective of the health care system and to assess the impact of comorbidities on total cost. **METHODS:** Study participants were selected from the Independent Sickness Fund database on consumption of hypoglycemic agents and invited to participate in a clinical trial on diabetes education. Information on resource utilization during 12 months preceding inclusion was extracted from the database and combined with baseline clinical assessment data. Total health care costs consisted of costs paid by the public health insurance and patient co-payments and was analyzed as function of reported comorbidities through stepwise multiple regression. **RESULTS:** 574 patients agreed to participate. Mean age was 64 years (35 - 75) and type 2 diabetes was diagnosed since 7 years on average. 62% were men, 86% were treated with oral antidiabetics. 38% reported to have at least one comorbidity. 30% were hospitalized in the study period. Hospitalizations accounted for 41% of the total cost, followed by outpatient prescription medications (22%) and physician consults (8%). The mean (95% CI) health care cost was €4,522 (€3,799 to €5,245). The mean annual cost of patients with no comorbidities was €3,357 (€2,599 to €4,116) and increased till €4,750 (€3,511 to €5,990) for those with one comorbidity (p=.001) and till €7,303 (€3,909 to €10,697) and €9,868 (€4,685 to €15,051) for those with two and three comorbidities respectively (p=.039 and. 057). Coronary heart disease was the main contributor to the cost variability (R2=0.063, p=.000). **CONCLUSIONS:** Our study updates the knowledge on the actual annual cost of diabetes treatment in Flanders. Combination of clinical information and health insurance claims data allowed analysis based on the patient medical condition. The high marginal cost of people with comorbidities emphasises the importance of prevention for people diagnosed with type 2 diabetes.

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MULTIMORBIDITY PHARMACEUTICAL COST OF DIABETES MELLITUS

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OBJECTIVES: To estimate the multimorbity associated with diabetes mellitus type 2 and its relation to pharmaceutical cost in a primary health care setting. **METHODS:** Cross-sectional study during 2012. A health region of 5,150,540 population was analysed to determine the diabetic individuals. 350,015 diabetic individuals were identified through clinical codes using the ICD-9-MC classification and the 3M Clinical Risk Groups software. We analyzed the consumption of